

## EDUCATION

Community outreach will continue to be an important part of the program. Educational programs and presentations are designed to raise awareness of the mosquito's habitat and life cycle. Presentations are given to students and community service groups, while flyers and brochures are hand-distributed or mailed.



We will continue to utilize the media with ads and press releases in order to share information about important dates, events, and disease updates.

## SPECIAL PROGRAMS

**Medical Needs**—Residents who are highly allergic to mosquito bites or have special needs may qualify for the “Medical Needs” program, which offers extra larviciding and adulticiding services. The need must be verified by a health care provider.

**Long Driveway**—The “Long Driveway” program is designed to provide relief from biting adults to residents with long driveways where driving by the residence on the main road would not be beneficial. Approved residences are mapped and sprayed regularly.

## Mosquito Q & A

**Q:** Which mosquitoes transmit West Nile Virus?

**A:** At least 43 species of mosquitoes have been found infected with the West Nile virus in the U.S. Not all of these, however, are capable of maintaining the virus in such a manner as to permit them to transmit it among organisms. Many of these infected mosquitoes feed only upon birds, thus contributing to a cycling of the virus among avian populations. Other species feed upon these infective birds and then feed upon mammals, including humans. These are called “bridge vectors” because they serve as a conduit for the virus to travel from its reservoir in birds to its final host in humans or other mammals. In urban settings in the Midwest, **Culex pipiens** is usually the primary vector.

## ABOUT BIOLOGY

**B**ay County Mosquito Control's biology department is responsible for larval surveillance, adult surveillance, and disease surveillance.

Larvae are sampled in woodlots, fields, ditches, idle swimming pools, sewage lagoons, and retention ponds, while adults are collected from mechanical traps including light traps, CDC traps, and gravid traps. During larval and adult surveillance, data are scientifically collected and analyzed in order to control mosquitoes in the most effective way, while minimizing environmental impacts.

Monitoring of mosquito-transmitted diseases continues each year. Testing mosquitoes and wild birds for the presence of viruses is an important program feature. Dead bird monitoring and testing will also continue in 2012 as we maintain screening for West Nile, St. Louis, Eastern Equine, and LaCrosse encephalitis.

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# MARCH 7, 2012



## THE 2012 PROGRAM PLAN

**BAY COUNTY  
MOSQUITO CONTROL**

## HIGHLIGHTS

- Purchase 2 new trucks
- Spring aerial application: 4#/acre throughout county
- Increase aerial acres treated during spring application
- Expand catch basins treated with Natular XRT
- Fabricate an additional liquid ditch gun unit
- Nighttime shift will run from 8pm—2am
- Evaluate effectiveness of two new larvicide oils manufactured by Clarke and Univar, USA
- Evaluate effectiveness of permethrin-based adulticides
- Field trial using electric ULV machine
- Monitor spread of *Aedes japonicus*
- Continue surveillance for WNV and other mosquito-transmitted viruses
- Obtain NPDES permit through MDEQ
- Develop and follow guidelines of Pesticide Discharge Management Plan, as required by NPDES
- Develop new program brochure





## PERSONNEL



Seven full-time staff members are employed to complete a variety of tasks, including mosquito surveillance, suppression, supervision, mapping, data entry, education, and equipment/vehicle repair. In addition, 34 seasonal employees will be hired for the 2012 season. Recruitment will take place through classified ads and the Regional Great Lakes Bay Opportunity Expo at Delta College on March 30th. Interviews for qualified candidates will occur from March through May, with hourly wages remaining at \$8 (day shift) and \$10 (night shift). Seasonal staff will attend a training session, be issued a reference training manual, and pass an exam administered by the MDA to become certified pesticide applicators.

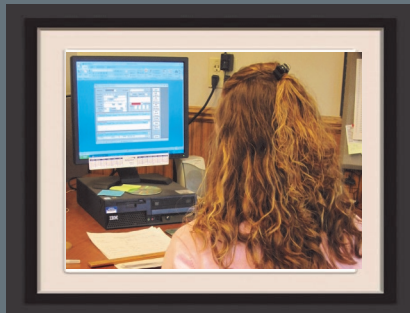
## OFFICE

In a typical year, we will respond to over 2,500 service requests from Bay County citizens. Requests are logged into a database and used as one means to monitor mosquito annoyance. Office staff also maintain the long driveway program, where residences far enough off the main roadway are fogged in order to provide relief from biting adults.

Medical needs and no spray registries are retained, mapped, and updated as needed. No spray residents are asked to place reflective signs at property borders, which indicates to our staff that the residence must be “skipped” or “not treated”.

Office staff also maintain pesticide application records, financial accounts, and correspondence.

In 2012, office staff will contact Bay County residents who have received service for a customer satisfaction survey.



## SPRING CAMPAIGN

Spring larviciding controls *Aedes* mosquito larvae in woodlots using *Bti* before they emerge as biting adults. *Bti* kills mosquito larvae, but does not adversely affect other wildlife or beneficial insects, people, or pets. Aerial and ground applications will be timed to coincide with the second and third instar larval stage. Clarke of Roselle, IL will provide helicopter services while Earl's Spraying Service of Breckenridge, MI will be the fixed wing applicator. Woodland area treated by air will increase to nearly 50,000 acres due to lowering the dosage rate from 5 to 4 pounds per acre.

Treatment occurs after extensive surveillance has taken place. The following is a list of spring aerial program components: 40 woodlots monitored, 300 acres treated by ground crews, 1 loading zone (Barstow Airport) for fixed wing aircraft, 8 loading zones utilized for the helicopter, aircraft calibrated to a 4 pound per acre dosage rate. Following treatment, woodlots will be monitored to determine treatment efficacy through pre and post larval counts. These dip counts will be taken in both treated and untreated (control) woodlots.

## SUMMER LARVICIDING

Larviciding involves the introduction of control materials into aquatic habitats to control larvae or pupae and prevent adult emergence. Habitats with a previous history of breeding will be investigated, with additional emphasis on mapping new sites. We expect to survey nearly 20,000 sites, treating about 15%. We will give emphasis to source reduction in the form of dumping water from containers to eliminate larvae. Technicians will respond to service requests phoned in by residents as well as survey known breeding sites or new sites they find during daily monitoring.

For Bay County Mosquito Control, larviciding is the main component of our control program. There are a number of different products available to control larvae and pupae, and often times one product will be better suited for a particular situation than another. Control materials that are used include microbial products such as *Bti*, *Bacillus sphaericus*, and Natular (spinosad), as well as temephos and larvicide oils.



Catch basins, roadside ditches, idle pools, flooded fields, retention ponds, woodlots, sewage lagoons, scrap tires, and artificial containers will be monitored regularly.

## SCRAP TIRES

Two community scrap tire drives are scheduled for the 2012 season. Ten tires without rims can be dropped off per Bay County residence. The tire drive is designed to collect tires from residential areas, thereby targeting mosquitoes using scrap tires as a breeding habitat in neighborhoods; businesses are excluded. Both tire drives will be held at the Bay County Fairgrounds; a second satellite drop-off location may be available as well. Tires are shipped to Environmental Rubber Recycling of Flint via semi trailers where they are ground into chips and shipped to Michigan power plants to be burned as tire-derived fuel (TDF).

We have applied for a Scrap Tire Cleanup Grant with the Michigan Department of Environmental Quality and are hoping to receive up to \$3,000 to help defray the cost of our 2012 tire drives.

## ADULTICIDING



Our primary goal is to protect public health by managing mosquito populations so they do not present a significant risk to our community. In order to meet that goal, fogging to reduce adult mosquitoes will be carried out using eight Ultra Low Volume (ULV) spray units. Truck-mounted fogging will occur from sunset to 2:00 a.m., provided that mosquito populations are high enough to warrant treatment.

Adulticiding involves the use of a control material (permethrin) to reduce numbers of adult mosquitoes to tolerable levels or to disrupt or end the transmission of disease to humans. Adulticiding is necessary because larviciding is not 100% effective, some breeding sites may not be treated, and mosquitoes can migrate into our district from untreated surrounding areas.

Spray equipment is calibrated to ensure the proper amount of product is applied during each treatment; droplets are also measured several times each season to make certain that label recommendations are followed.

Residents who prefer no treatment will be excluded from adulticiding operations.

## INTEGRATED MOSQUITO MANAGEMENT